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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,431	11/12/2003	B. Raghava Reddy	2002-IP-007973U1	7146
28857	7590	01/04/2006	EXAMINER	
CRAIG W. RODDY HALLIBURTON ENERGY SERVICES P.O. BOX 1431 DUNCAN, OK 73536-0440			FULLER, BRYAN A	
			ART UNIT	PAPER NUMBER
			3676	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,431

Applicant(s)

REDDY ET AL.

Examiner

Bryan A. Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
4a) Of the above claim(s) 2, 5, 17 and 19-31 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 3-4, 6-16, 18 & 32 - 36 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the applicant's amendment filed 11/02/2005. Claims 1 – 36 have been finally rejected.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 – 4, 6 – 12, 17 – 18, and 32 - 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al (6,060,535) in view of Burkhalter et al (4,450,010).

With respect to claims 1 and 32: Villar et al teaches in column 2, line 1 – column 3, line 54 the process for cementing a subterranean formation, comprising:

- (a) forming a cement composition comprising a cement and one or more beads combined with the cement; and
- (b) introducing an inert gas phase to the cement composition.

With respect to claim 3: Villar et al teaches in column 5, line 63 – column 12, line 20 wherein step (b) reduces an elastic modulus of the cement composition by from about 5% to about 90%.

With respect to claims 4 and 33: Villar et al teaches in column 2, line 1 - column 3, line 40 wherein the cement composition comprises a plurality of beads, and wherein

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the change in actual density results from the breakage of at least one of the beads when the cement composition is positioned in the well bore. Villar et al further teaches a method wherein the beads are selected from the group consisting of cenospheres, glass spheres, ceramic spheres, and combinations thereof.

With respect to claim 6: Villar et al teaches in column 3, lines 41 – 54 wherein the introducing the inert gas phase comprises one or more of the following methods:

- (i) adding a porous material to the cement composition; and
- (ii) injecting gas directly into the cement slurry.

With respect to claim 18: Villar et al teaches in column 6, lines 61 – 67 wherein the inert gas phase is present in the cement composition in an amount effective to maintain a density of the cement composition in a range of from about 8 to about 23 lb/gal when one or more of the beads break.

With respect to claim 35: The Examiner takes official notice that subterranean formations can exert pressures of at least 1,000 pounds per square inch.

With respect to claim 36: Villar et al teaches in the tables in columns 7 and 8 a method wherein the compressive strength of the cement composition is at least 2,000 pounds per square inch.

What Villar et al does not teach is a method of introducing an inert gas phase to the cement composition via in situ formation of the inert gas while the cement composition is positioned in the well bore. Villar et al does not teach a method of displacing the cement composition into a well bore in contact with the subterranean formation. Additionally, the reference does not teach a method wherein the gas

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generating material is a specific nitrogen generating material, and further comprising introducing an oxidizing agent to the cement composition, the oxidizing agent being capable of activating the nitrogen generating material. Villar et al does not teach the method of using well and cement composition parameters to select the amount of inert gas to use. Finally, Villar et al fails to teach a method of adding the gas generating material and the oxidizing agent either one prior the other and prior to displacing the cement composition, then adding the other during the displacement, or adding both simultaneously.

With respect to claims 1(b) and 34: Burkhalter et al teaches in column 2, line 63 – column 3, line 9 a method wherein the inert gas phase is added to the cement composition via in situ formation of the inert gas while the cement composition is positioned down hole.

With respect to claim 7: Burkhalter et al teaches in column 1, lines 6 – 13 the process of displacing the cement composition into a well bore in contact with the subterranean formation.

With respect to claim 8: Burkhalter et al teaches in column 2, line 8 – column 3, line 3 the process wherein the gas generating material is a nitrogen generating material, and further comprising introducing an oxidizing agent to the cement composition, the oxidizing agent being capable of activating the nitrogen generating material.

With respect to claims 9 - 11: Burkhalter et al teaches in column 7, lines 46 - 53 the process of adding the gas generating material and the oxidizing agent either one

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prior the other and prior to displacing the cement composition, then adding the other during the displacement, or adding both simultaneously.

With respect to claim 12: Burkhalter et al teaches in column 3, lines 13 - 52 the process of using a specific nitrogen gas generating material.

With respect to claim 32: Burkhalter teaches in column 4, lines 24 – 45 a method of selecting a desired density for a down hole cement composition; forming a cement composition having an actual density at the surface; estimating a change in the actual density when the cement composition is positioned down hole. Burkhalter teaches the method of taking the parameters of the well bore and cement composition and adjusting the cement composition properties according to the desired results.

It would have also been a matter of engineering design or choice to take the parameters of the well bore and the cement composition and adjust the density of the cement with a specific amount of inert gas to achieve specific cement characteristics down hole.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention in view of Burkhalter et al, because the generation of gas in the cement controls the emission and flow of gas from the formation into the borehole or well annulus.

1. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al and Burkhalter et al as applied to claim 8 above, and further in view of Dillenbeck, III (5,613,558).

With respect to claim 13: Villar et al and Burkhalter et al teach the features as previously claimed except for the use of a specific oxidizing agent. Dillenbeck, III teaches in column 2, line 41 – column 3, line 6 the process wherein a specific oxidizing agent is used. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Villar et al's and Burkhalter's inventions in view of Dillenbeck, III, because the specific oxidizing agent destructs the retarder and serves to accelerate the setting process of the cement.

3. Claims 14 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al and Burkhalter et al as applied to claims 1 and 6 above, and further in view of Heathman (5,996,693).

With respect to claims 14 - 16: Villar et al and Burkhalter et al teach the features as previously claimed except for the process of using aluminum powder as the specific gas generating material to produce hydrogen. Heathman teaches in column 3, lines 3 - 8 the process of using aluminum powder as the specific gas generating material to produce hydrogen. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Villar et al's and Burkhalter et al's inventions in view of Heathman, because this allows the generation of gas in a wellbore which is deep, has a high bottom hole temperature, penetrates weak formations having high potential for gas flow into the well bore and was drilled using an oil based drilling fluid.

Response to Arguments

4. Applicant's arguments with respect to claims 1 - 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Brian E. Glessner
Supervisory Patent Examiner
Art Unit 3676

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